

WHAT IS CLAIMED IS:

1. A passive optical network transmission system comprising:
a plurality of subscriber unit including optical network
unit processing portions for terminating an optical
5 communication network;

a station unit including optical line terminal processing
portion terminating said optical communication network;

means for monitoring increasing and decreasing of idle
cells;

10 means for recognizing accumulation of cell in said optical
network unit processing portion depending upon the result of
monitoring; and

means for individually handling band process in said
optical communication network according to necessary or
15 unnecessary of band restriction depending upon traffic type.

2. A passive optical network transmission system as set forth
in claim 1, which further comprises means for rejecting packet
which cannot be processed.

20 3. A passive optical network transmission system as set forth
in claim 1, wherein said optical line terminal processing portion
includes grant generating means for non-band restricted cell
for generating transmission permission for the non-band
25 restricted cell by assigning extra band constantly, and idle

cell detecting means for monitoring increasing and decreasing said idle cell.

4. A passive optical network transmission system as set forth
in claim 3, wherein said optical line terminal processing portion
further includes means for discriminating said transmission
permission for permitting individual process of traffic
requiring band restriction and traffic not requiring band
restriction.

5. A passive optical network transmission system as set forth
in claim 4, wherein said optical line terminal processing portion
further includes means for setting weighting function for
estimating variation of said traffic.

6. A passive optical network transmission system as set forth
in claim 1, wherein said optical line terminal includes means
for notifying said subscriber unit stopping transmission for
packet information.

7. A dynamic band assignment method in a passive optical
network transmission system including a plurality of subscriber
unit including optical network unit processing portions for
terminating an optical communication network and a station unit
including optical line terminal processing portion terminating

said optical communication network, comprising the steps of
monitoring increasing and decreasing of idle cells;
recognizing accumulation of cell in said optical network
unit processing portion depending upon the result of monitoring;

5 and

individually handling band process in said optical
communication network according to necessary or unnecessary
of band restriction depending upon traffic type.

10 8. A dynamic band assignment method as set forth in claim
7, which further comprises a step of rejecting packet which
cannot be processed.

15 9. A dynamic band assignment method as set forth in claim
8, wherein said optical line terminal processing portion
performs process comprising the steps of generating
transmission permission for the non-band restricted cell by
assigning extra band constantly, and monitoring increasing and
decreasing said idle cell.

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10. A dynamic band assignment method as set forth in claim
9, wherein said optical line terminal processing portion
performs process comprising the step of discriminating said
transmission permission for permitting individual process of
25 traffic requiring band restriction and traffic not requiring

band restriction.

11. A dynamic band assignment method as set forth in claim
10, wherein said optical line terminal processing portion
5 performs process comprising the step of setting weighting
function for estimating variation of said traffic.

12. A dynamic band assignment method as set forth in claim
7, wherein said optical line terminal processing portion
10 performs process comprising the steps of notifying said
subscriber unit stopping transmission for packet information.